

# Continuous Air Monitoring System

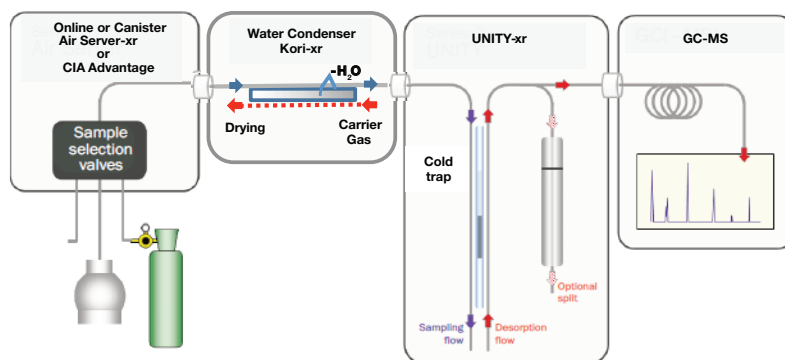
## TD-GC-MS system for monitoring VOCs in ambient air

Developed to improve the analysis of VOC ozone precursors in response to the evolving needs of the EPA Photochemical Assessment Monitoring Stations (PAMS). Our continuous air monitoring system integrates industry leading GC and GC-MS capabilities with superior air analysis products from Markes International.

Round the clock, unattended, on-line monitoring of complex VOC compound mixes require reliable instrumentation that is easily managed and maintained. Using the TD-GC-MS system, sampled air is pulled directly onto an electrically-cooled, sorbent-packed focusing trap, removing the need for liquid cryogen. A dehydration trap, Kori-xr™, removes moisture from the sample using phase transition from gas to solid, minimising the loss of any polar compounds. Samples are taken using a pump and mass flow controller (MFC) to control the flow rate of the sample through the UNITY narrow bore focusing trap. VOCs are adsorbed on to a specialized mixture of sorbents contained trap, where up to 1.5L of sample can be retained without breakthrough of even the most volatile compound, acetylene.

Following collection of the sample, the focusing trap is rapidly heated, releasing the analytes into the flow of inert carrier gas as a narrow band of highly concentrated vapor. This is then injected into the GC-MS system for separation.

While past Auto GCs used dual FID configurations, the use of GC-MS offers distinct advantages for air analysis data quality objectives including the generation of mass spectrums for confident identification of both known and unknown compounds. The combined features and capabilities of the TD-GC-MS system provide effortless management and routine maintenance specifically suited for remote settings. Read along and explore the benefits of each component





The Markes International UNITY-xr™ Air Server-xr™ is a cost-effective system for round-the-clock speciated measurement of multiple trace-level VOCs in air or pure gases. It combines automated, controlled-flow sampling with cryogen-free concentration technology. The system connects to standard GC and GC-MS technology, and is designed for unattended operation in remote field locations.



The Thermo Scientific™ ISQ™ Single Quadrupole GC-MS systems coupled with the Thermo Scientific™ TRACE™ 1300 Series Gas Chromatograph incorporates the latest GC technology providing continuous reliable performance for sample analysis. Whether configured for dual FID data collection or taking advantage of the expanded capabilities of mass spec for unknown identifications our system prepares users for current and future air monitoring requirements. Modular injectors/detectors and our removable ion source reduce troubleshooting and maintenance requirements providing optimal uptime for sample collection and analysis.



Newly developed capabilities of Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) Software allows control of GC and GC-MS instrumentation with unique features for continuous automated data collection and data exploration. In addition, library search capabilities offer advanced capabilities for unknown air component identification that is unattainable from traditional CDS systems coupled to FID systems.



Our GC columns meet specific VOC analysis requirements with reliable, reproducible results for GC and GC-MS analysis. Using the Thermo Scientific™ TraceGOLD™ Bond Q analytical column in the single column configuration with GC-MS enables combined analysis of C2-C6 in addition to typical VOC compounds removing the need for multi column configuration and simplifying system setup and management for field technicians.



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